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REMARKS

A Notice of Non-Compliant Amendment indicated that applicants did not address the prior art rejection. It turns out that the art rejection was embedded in the "response to arguments" section and not included in any section labeled "claims rejection" (as other rejection sections were). Applicants regret for the omission.

Because this is a substitute amendment, the text below repeats the arguments presented in the aforementioned 6/27/2006 amendment; and to make the response complete, those arguments are followed by the arguments relative to art.

A short telephone interview was held with Examiner Bruckart on September 13, 2006, and the Examiner's courtesy and helpful comments are greatly appreciated. The amendments to claim 1 and 13 endeavor to be responsive to the Examiner's suggestions.

Claims 1-12, 21, and 23-27 were rejected under 35 USC 101 as being non-statutory. The Examiner asserts that the claims are directed to abstract ideas, and that there is no hardware embodiment in the claims or in the specification. The Examiner admits that applicants' method achieves "a useful result" but apparently the Examiner believes that this is insufficient because it "is based on an abstract idea, best neighbor approach." The Examiner also states that the "best neighbor approach is not sufficient to enable a person skilled in the art to perform the features and produce repeatable results."

Applicants respectfully traverse and, moreover, applicants respectfully submit that the assertion of a disclosure that is not "sufficient to enable a person skilled in the art to perform the features and produce repeatable results" cannot support a rejection under 35 USC 101. Such an assertion ought to trigger a 35 USC 112, first paragraph, rejection, and not a 35 USC 101 rejection. This assertion is addressed below in connection with the 35 USC 112, first paragraph rejection that was indeed lodged by the Examiner.

As for the 35 USC 101 issue, applicants respectfully submit that controlling operation of a physical arrangement such a network is not unlike controlling the operation of a rubber curing machine (Diamond v. Dhier), and such controlling is definitely statutory subject matter. In claim 1, the second step of the method clearly specifies a physical action that relates to the operation of a network and, therefore, it is respectfully submitted that claim 1 is clearly statutory. Nevertheless, in order to make the claim clearer, it is amended herein to define in more detail the fact that the weights are associated with network links

(more explicit association of numbers to physical elements), that the weights are obtained by having a starting set of numbers and modifying that set of numbers, and that the modifying is iterative. Independent method claim 21 is similar to claim 1 relative to the 35 USC 101 issue, and independent apparatus claim 13 specifies a device for computing weights that are associated with links of a network, and for controlling traffic flow in at least one node of the network. Apparatus claims are clearly statutory, and there is absolutely no preemption of any mathematical algorithm in the subject claim.

Applicants respectfully submit, therefore, that all of the claims define statutory subject matter in compliance with 35 USC 101.

Claims 1-19, 21, 23-27 were rejected under 35 USC 112, first paragraph. The Examiner asserts that the best neighbor approach is defined, but not in enough detail to allow a person skilled in the art to make and/or use the invention. The Examiner also asserts that "the same issues revolve around the multi-dimensional cost function as the Examiner cannot ascertain the necessary information for this limitation." Applicants respectfully traverse, and in support of the traverse a 37 CFR 1.132 Declaration is respectfully submitted. It is believed that the Declaration overcomes the rejection.

Claims 1-19, 21, and 24-26 were rejected on the ground of nonstatutory double patenting over claims 1-20 of US Patent 6,829,220. A terminal disclaimer is enclosed herewith to overcome the rejection.

Claims 1, 13, and 21 were rejected under 35 USC 103 as being unpatentable over US Patent 6,359,861 issued to Sui et al in view of Frogioni et al article title "Experimental Analysis of Dynamic Algorithm for the Single Source Shortest Paths Problem, ACM Press, Article No. 5, pp 1-3, 5-6, 1998. Applicants respectfully traverse.

Sui et al teach a switch where there are N inputs and M outputs. Each input feeds M buffers, and each of the M buffers that is fed by an input is assigned to one of the M different outputs. Thus, there are NM buffers, and a buffer associated with each of the inputs is also associated with an assigned output. Thus, each buffer has two associations: one with an input, and one with an output. The N buffers that are associated with a given output compete with each other as to which of the buffers is allowed to send a packet to the given output. A weight is assigned to each of the NM buffers, and the aforementioned competing is resolved based on these weights (col. 4, lines 1-9). Citing col. 4, lines 1-9 the

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Examiner argues that control of a network is achieved. Since the cited passage does not even mention the word "network," one must assume that the Examiner impliedly argues that traffic flow in a network is controlled via control of the operation of the switches.

The Examiner asserts that Sui et al fail to teach a best neighbor approach, but that the Frigioni et al reference teaches the best-neighbor approach, and that it would have been obvious to combine the two.

While the Examiner's admission regarding what Sui et al fail to teach is correct, it is incomplete. Actually, Sui et al also fail to teach a multitude of attributes of claim 1, as is demonstrated in the table below, where each row of the table highlights an attribute that is NOT taught by Sui et al (rows 1-6 pertain to the 1st step of claim 1, and row 7 pertains to the 2nd step of claim 1).

	Claim 1 attributes	Sui et al reference
1	generating a set of control weights *for a respective set of links of the network,*	The control weights are for individual buffers of a switch. There is no notion of control weights for **links of the network**.
2	from a given *network load and a cost function,*	Weights are set based on credits associated with each buffer, buffer length, or a combination of both (see Abstract, lines 7 et seq.) They do not teach setting the weights on a **network** load or a **cost function**; and certainly not on network load **and** a cost function.
3	where the set of control weights begins with a starting set of control weights and *iteratively is modified*	No iterative modifying is taught.
4	based on the cost function,	No iterative modifying based on a cost function is taught.
5	and the iterative modifying is carried out in accord with a *best-neighbor approach*	As admitted by the Examiner, no "best neighbor" approach is taught.
6	that is other than a steepest descent algorithm	This defined an approach that is different from the Dijkstra algorithm.
7	controlling traffic flow in the network using the set of control weights *in decisions relative to links of the network that are to be used for the transmission of packets.*	In Sui et al the decisions are relative to which buffer sends packets to which output terminal of a switch. There is no decision relative to which **links** are used for the transmission of packets.

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Thus even if the Examiner were correct about the Frigioni et al reference, both in terms of what it teaches and whether there is any motivation to combine with Sui et al, the above demonstrates that even such a combination does not result in the invention defined in claim 1.

Moreover, the Examiner is NOT correct in the assertion that Dijkstra algorithm corresponds to the best neighbor approach disclosed in the instant specification.

The Dijkstra algorithm is an algorithm for finding the least costly path from any selected source node of a directed graph to any selected destination node. It is a step-wise algorithm that starts at the source node, with a 0 cost, and increases the cost, albeit by a minimum amount, by selecting a link that moves from the source node to an neighboring node that contributes the least cost, as compared to other neighboring vertices. A neighboring node is a node that can be reached by traversing only one link. The costs of reaching the other neighbor vertices, though larger, are remembered, but the next step repeats the operation with the reached neighbor node serving as the source. At each step the node with the least cost from the nodes for which costs have been determined serves as the source node. Selecting, at each step, the neighbor node that contributes least cost to the overall cost is a "steepest descent" method. A steepest descent approach is akin to finding oneself somewhere on the surface of a mountainous terrain and taking the approach of walking downhill along the steepest route downward.

Applicants' specification clearly and explicitly teaches that a "best-neighbor" approach is NOT a steepest descent approach.

It appears that the Examiner chooses to not accept the scope of that term as taught by applicants' specification. Accordingly, in order to advance prosecution, and in consonance with a suggestion made by the Examiner in the aforementioned interview, claim 1 is amended to specify that the best neighbor approach is *other than* a steepest descent algorithm.

In light of the above, it is respectfully submitted – based on the above table – that there are 7 different reasons to hold claim 1 patentable over the Sui et al and Frigioni et al combination of references.

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As for claim 13, similar arguments apply. In connection with the first element of the claim – the "weight device" – the Examiner points to col. 4, lines 1-9 of the Sui et al reference. Respectfully, the cited passage describes no weight device (or any other apparatus element). Moreover, even the method, or procedure, that is described in the cited passage does not generate a set of control weights "one for each link of the network," as specified in the claim.

The Examiner also points to col. 7, lines 14-23 of Sui et al for the proposition that the reference teaches at least one network node receiving one or more control weights. Respectfully, the cited passage teaches no such thing. In fact, the cited passage teaching no apparatus elements, but merely discusses the fact that most scheduling algorithms associate a priority or weight with an edge of a graph. Nothing is described in Sui et al that *receives* weights. It is noted in passing that a graph has edges, but graphs can describe many different situations, and certainly there is no inherent correspondence between graph edges and links of a network, so the discussion in the cited passage relative to the fact that graphs generally assign edge weight has nothing to do link weights.

Regarding the "best neighborhood" aspect of claim 13, it is respectfully submitted that applicant's arguments on this point in connection with claim 1 apply with equal vigor to claim 13. Nevertheless, again in order to expedite prosecution, claim 13 is amended to more explicitly define the "best neighbor" approach. It is respectfully submitted, therefore, that claim 13 is not obvious in view of the combination of Sui et al and the Frigioni et al reference.

As for claim 21, first applicants respectfully direct the Examiner's attention to the argument presented above in connection with claim 1 relative to the fact that Sui et al do NOT set control weight to links, and respectfully submits that the same argument applies to the first step of claim 21. Second, applicants note that the Examiner failed to explicitly assert that any of the references teach an N dimensional concave cost function of traffic load on each of the N links, as specified in the claim. Third, the Examiner's comment relative to the "best neighbor" approach are rebutted in the arguments presented in connection to claim 1 to the effect that the Dijkstra algorithm is a steepest descent algorithm and that the best neighbor approach is not a steepest

descent algorithm. It is respectfully submitted, therefore, that claim 21 is not obvious in view of the combination of Sui et al and the Frigioni et al reference.

Addressing the Examiner's remarks just prior to the "Conclusion" in the Office action, it is respectfully submitted that applicants are NOT requesting the Examiner to "read the specification into the claim language." Rather, applicants desire the Examiner to apply the black letter law that terms in a claim are given the meaning presented in the specification. That is all that the Examiner needs to do.

As for the "modified best neighbor" approach to which the Examiner refers, the application clearly discloses and claims modifications (see, for example claim 15), but the existence of a "modified best neighbor approach" approach in the specification is not an impediment to giving the term "best neighbor approach" its proper meaning. When that is done, no issues of clarity of prior art stand in the way of patentability.

In light of the above amendments and remarks applicants respectfully submit that all of the Examiner's rejections have been overcome. Reconsideration and allowance are respectfully solicited.

Respectfully,
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Bernard Fortz

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